



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/814,985

03/31/2004

Neal R. Rueger

872-0102US

1278

29855

7590

04/15/2008

WONG, CABELLO, LUTSCH, RUTHERFORD & BRUCCULERI,
L.L.P.

20333 SH 249

SUITE 600

HOUSTON, TX 77070

EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

04/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,985	Applicant(s) RUEGER, NEAL R.	
	Examiner Ram N. Kackar	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-23 and 44-70 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 44-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/23/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11 and 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gary Powell (US 6538734).

Gary Powell discloses a reaction chamber (101 also processing chamber of the claim) for deposition or etch processing (Col 1 lines 10-20). Further, Gary Powell discloses an excitation chamber (105 also plasma chamber of claim) for detecting a sample gas by exciting it to emit radiation representing its chemical composition (Abstract) and teaches that this excitation chamber could be coupled to the reaction chamber to analyse a sample of exhaust gas coming out of plasma processing in the reaction chamber. As a further aspect Gary Powell discloses determining a flow of unknown sample gas when combined with a known flow of reference gas

Art Unit: 1792

(Abstract and Col 1 lines 34-37) when the combination is excited together in the excitation chamber. The excitation chamber is disclosed to comprise a cylindrical cavity for receiving the processing gas (Fig 2-235) and a reference gas (Col 1 line 33-37, Col 7 lines 31-40 and Col 8 lines 7-14). The sampled gas could be exhaust gas of a process or its representative (Col 2 lines 7-14). Further disclosed is an energy source coupled inductively to the excitation chamber for excitation of the gas (203), flange for processing gas (Fig 2-221), window for monitoring the plasma (237), fiber optics (208), a computer (112) to receive and analyze the spectrum and to control (Abstract). The process could be plasma or non-plasma (Col 7 lines 31-40).

As discussed above, Gary Powell teaches the presence of both reference gas and sample gas in the excitation chamber for the disclosed method of analysis but does not disclose the mechanism or plumbing needed to accomplish this. For proving the concept Gary Powell discloses flowing both reference gas through the same process chamber as the one which produces the sample gas. Further no plasma is generated in this process chamber so that it merely provides a conduit for the reference and sample gases to reaction chamber of Gary Powell where plasma for analysis is produced.

After being assured of the success of this method, to provide two inlets- one dedicated for reference gas and one dedicated for sample gas- coupled to the excitation chamber so as to include reference gas with sample gas in the excitation chamber in order to get the analytical advantage according to the teaching of Gary Powell would have been obvious to one of ordinary skill in the art at the time of invention.

Having a dedicated input for reference gas has the obvious advantage that a self contained unit with a dedicated port could be designed for any number or type of reference gases

Art Unit: 1792

and could be attached to any process chamber without any modification to it, since on a process chamber, gas inlet ports would generally be specific to a certain process. It is obvious that with a dedicated input for reference gas it will not pass through a process chamber.

4. Claims 11 and 13-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gary Powell (US 6538734) in view of Fujimura et al (US 6007671).

Gary Powell discloses a reaction chamber (101 also processing chamber of the claim) for deposition or etch processing (Col 1 lines 10-20). Further, Gary Powell discloses an excitation chamber (105 also plasma chamber of claim) for detecting a sample gas by exciting it to emit radiation representing its chemical composition (Abstract) and teaches that this excitation chamber could be coupled to the reaction chamber to analyze a sample of exhaust gas coming out of plasma processing in the reaction chamber. As a further aspect Gary Powell discloses determining a flow of unknown sample gas when combined with a known flow of reference gas (Abstract and Col 1 lines 34-37) when the combination is excited together in the excitation chamber. The excitation chamber is disclosed to comprise a cylindrical cavity for receiving the processing gas (Fig 2-235) and a reference gas (Col 1 line 33-37, Col 7 lines 31-40 and Col 8 lines 7-14). The sampled gas could be exhaust gas of a process or its representative (Col 2 lines 7-14). Further disclosed is an energy source coupled inductively to the excitation chamber for excitation of the gas (203), flange for processing gas (Fig 2-221), window for monitoring the plasma (237), fiber optics (208), a computer (112) to receive and analyze the spectrum and to control (Abstract). The process could be plasma or non-plasma (Col 7 lines 31-40).

As discussed above, Gary Powell teaches the presence of both reference gas and sample gas in the excitation chamber for the disclosed method of analysis but does not disclose the mechanism or plumbing needed to accomplish this. For proving the concept Gary Powell discloses flowing both reference gas through the same process chamber as the one which produces the sample gas. Further no plasma is generated in this process chamber so that it merely provides a conduit for the reference and sample gases to reaction chamber of Gary Powell where plasma for analysis is produced.

After being assured of the success of this method, to provide two inlets- one dedicated for reference gas and one dedicated for sample gas- coupled to the excitation chamber so as to include reference gas with sample gas in the excitation chamber in order to get the analytical advantage according to the teaching of Gary Powell would have been obvious to one of ordinary skill in the art at the time of invention.

Having a dedicated input for reference gas has the obvious advantage that a self contained unit with a dedicated port could be designed for any number or type of reference gases and could be attached to any process chamber without any modification to it, since on a process chamber, gas inlet ports would generally be specific to a certain process.

Fujimura et al discloses a plasma chamber (Fig 1-1) for detecting a sample gas by exciting it in a plasma cavity (3). Further, Fujimura et al disclose determining a flow of sample gas (for example hydrogen by actinometry- as in Col 11- lines 33-36) when combined with a reference gas (H₂O as in Fig 1, Fig 7 and Col 10 lines 57-59) when the combination is excited together in the plasma chamber. The reference gas is not disclosed passing through any process

Art Unit: 1792

chamber. The excitation chamber is disclosed to comprise a cylindrical cavity for receiving the processing gas.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to provide for inlets for reference gas in addition to exhaust gas to enable determination of exhaust gas according to the teaching of Gary Powell.

The limitation of “wherein the reference gas does not pass through the processing chamber” is an intended use limitation and does not point to any structural limitation. Further, claim 10 is also directed to an intended use.

Response to Arguments

Applicant's arguments filed 1/23/2008 have been fully considered but they are not persuasive.

Applicant argues that in Powell the reference gas must pass through the process chamber. This is mischaracterization of Powell. There is nothing in Powell to insist that if reference gas does not pass through the process chamber actinometric analysis down stream will not work. This is evident from the fact that the gases pass through the process chamber without any plasma or processing to modify them (Col 7 lines 31-40).

Further, the fact that in Fujimura there may be processing down-stream does not have any bearing on the limitations of the claims as recited and those of the reference as disclosed.

Regarding the negative limitation “wherein the reference gas does not pass through the processing chamber” it is noted that although reference gas has a dedicated input and therefore does not pass through the process chamber, there is no appreciation in the specification that it is

Art Unit: 1792

anything more than a mere plumbing convenience. This is also evident from Powell (Col 1 lines 61-64).

As such, provision of a dedicated input to reference gas amounts to no more than a rearrangement of parts where benefits of such a rearrangement could be assured without any doubt.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/814,985
Art Unit: 1792

Page 8

/Ram N Kackar/
Primary Examiner, Art Unit 1792